Corrected text of the article published in
MÉLANGES OFFERTS À KARL-G. PRASSE (pp. 357-377).

MEDIEVAL BERBER ORTHOGRAPHY

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Introduction

In the Middle Ages, Berber was written in the Maghribi style of the Arabic script, in what is to all appearances a standardized orthography. The earliest known examples of the medieval Berber spelling date from the middle of the 10th century A.D., while the youngest examples date from the 14th century.

Although there is some variation in the representation of a number of consonants, the orthography is remarkably consistent. In this respect it is quite unlike the early orthographies of the European vernaculars, where the same word is often written in different ways even within one line of text. This consistency implies that the Berber orthography was consciously designed, and that it was formally taught to berberophones.

It is to be noted that the highest consistency is found in the oldest manuscripts. Copies of medieval texts dating from the post-medieval period, when the old orthography had fallen into disuse, show varying degrees of corruption. This is partly due to some copyists being non-berberophones. Other copies were made by speakers of Tashelhit, which from the end of the 16th century up to the present has been written in a spelling which is fundamentally different from the medieval orthography (see on this orthography van den Boogert, 1997, chapter 3).

This article will first present a concise survey of the available sources, followed by an explanation of the rules and conventions of the orthography.[1] It is hoped that this will enable future editors to transcribe and interpret medieval Berber materials more accurately than has hitherto been the case.

1. Some of the basic rules of the medieval orthography were noted by Marcy in an article (1932).

The sources {p. 538}

The sources for our knowledge of the medieval orthography are much more numerous than one might think. In fact, a number of these sources have been available in print for quite some time, although Berberologists have so far failed to exploit them. The sources can be divided into four groups:

(1) Pharmacological manuals. Almost all works on this subject that were written in the Maghrib contain a number of Berber names of plants and animals, sometimes only a handful, but in some cases more than a hundred. The following published sources were consulted for this article:

- Ibn ʿAbdūn of Seville, (fl. 1100 A.D.), *ʿUmdat aṭ-Ṭabīb* (ed. al-Khaṭṭābī, 1990 and 1996), contains more than 250 Berber names of plants.[2]
- Ibn Beklāresh of Saragossa, *al-Mustaʿīnī* (written ca. 1000 A.D.), contains some forty Berber names. Most of these are quoted by Renaud in an article (1930) and in his annotations to the edition of the *Tuḥfa*. Some names are mentioned by Dozy in his *Supplément*.
- Maimonides of Cordova (d. 601/1204), *Sharḥ Asmāʾ al-ʿUqqār* (ed. and tr. Meyerhof, 1940), contains 27 Berber names of plants.
- ʿAbdallāh ibn Ṣāliḥ al-Kutāmī (early 13th c. A.D.), commentary on Dioscurides (ed. and tr. Dietrich, 1988), contains more than 170 Berber names of plants and animals.
- Ibn al-Baiṭār of Malaga (d. 646/1248), *al-Jāmiʿ* (ed. Boulaq, 1874-5, tr. Leclerc, 1877-83, contains some 55 Berber names of plants and animals. These Berber materials were studied by René Basset in an article (1899); his transcriptions are generally imprecise and he presents only 41 out of 55 names.
- Ibn al-Ḥasshāʾ (13th c. A.D.), *Kitāb Mufīd al-ʿUlūm* (ed. Colin and Renaud, 1941), contains 14 Berber names.

The editions by al-Khaṭṭābī of Ibn ʿAbdūn, and the Boulaq edition of Ibn al-Baiṭār are not up to modern scientific standards, but they are serviceable for our present purpose. Some important pharmacological manuals containing Berber materials remain unpublished, among them works by az-Zahrāwī (Abulcasis), as-Suwaidī and al-Idrīsī (on whom see Ullmann, 1970, pp. 149-151, 284, 278).

2. The same edition was published twice (Rabat, 1990 and Beirut, 1996), with some revisions and a different numerations of the entries.

Berber names of plants in medieval spelling are often quoted in post-medieval sources, among them:

- al-Ghassānī (second half 16th c.), *Ḥadīqat al-Azhār* (ed. al-Khaṭṭābī, 1985), 36 Berber names.
- Anonymous, *Tuḥfat al-Aḥbāb* (ed. and tr. Renaud and Colin, 1934), *ca* 85 Berber names.
- al-Jazā'irī (fl. 1130/1717-8), *Kashf ar-Rumūz* (tr. Leclerc, 1874), *ca* 50 Berber names.

{p. 359} (2) Arabic works on history, geography and biography. Four of these sources were examined for this article:

- The anonymous *Kitāb al-Ansāb* (ed. and tr. Lévi-Provençal, 1928).
- The memoirs of Abū Bakr ibn 'Alī aṣ-Ṣanhājī, a close companion of Ibn Tumert, known by the nickname al-Baidhaq 'the Pawn' (ed. and tr. Lévi-Provençal, 1928).

These two texts, written in 12th and 13th centuries A.D., deal with the early history of the Almohads. They contain hundreds of personal names, tribal names and place names as well as a dozen phrases in Berber. Marcy has tried, with scant success, to transcribe and translate the phrases in an article (1932).

- al-Bakrī (d. 487/1094), *Kitāb al-Masālik wa-l-Mamālik* (ed. de Slane, 1857), contains many Berber place-names.[3]
- at-Tādilī (d. 627/1229-30), *at-Tashawwuf*, a biographical dictionary of South-Moroccan saints of the 5th-7th centuries A.H. (ed. Faure, 1958), contains many Berber personal names.

(3) The Arabic-Berber dictionary *Kitāb al-Asmā'* compiled in the year in 540/1146 by Ibn Tunart (ابن تونارت, 478-567 A.H., 1085-1172 A.D.). This is the richest source for medieval Berber, containing more that 2,500 Berber words and phrases, including more than 250 names of plants.[4]

(4) The 'Leiden fragment' (Leiden ms. Or. 23.306). This is a unique fragment

3. Some of these names were studied by Chaker (1981).
4. An edition of Ibn Tunart's Berber materials is in preparation by the present author. For a brief description of this source see also van den Boogert, 1998, pp. 11-13.

consisting of one leaf from a medieval manuscript (possibly 14th c.). The leaf contains a total of sixteen lines of continuous Berber text, written in calligraphic script. The subject of the text is ethics. This fragment may be seen as the 'smoking gun': apart from its mere existence, its contents as well as its external appearance are clear evidence that a mature and well-established written tradition in Berber existed in the medieval period. An edition and full analysis of the Leiden fragment is being prepared by the present author.

In the following exposition the rules and conventions of medieval Berber spelling will be illustrated mainly with plant names taken from the above-mentioned pharmacological handbooks and from Ibn Tunart's dictionary.

Judging from the Leiden fragment, medieval Berber texts appear to have been written with full vocalization. In most of the other sources, Berber words are fully or partially unvocalized. The examples below will be quoted without vocalization. In cases where it is necessary to know the full vocalization, a transliteration will be given between square brackets.

Word-internal vowels

Medieval Berber orthography distinguishes four vowels: *a*, *i*, *u* and *e* (*schwa*). In word-internal position, the vowels *a*, *i* and *u* are written with the *ḥurūf al-madd*: *alif* represents *a*, *yā'* represents *i* and *wāw* represents *u*:[5]

{p. 360}	تاسافت	*tasaft*	'oak'
	تيزنيرت	*tiznirt*	'fan palm'
	تولوليت	*tululit*	'caper'

In unvocalized script, the central vowel *e* (*schwa*) is not represented in word-internal position. *Schwa* may also occur in open syllables:

تامماشت	*tamemmašt*	'tamarisk'
تاسلت	*tasselt*	'laurel'
يلودى	*yeludi*	'Ranunculus sp.'

5. An alphabetical list of quoted forms with references is appended at the end of this article.

In fully vocalized script, *schwa* is most frequently written with *fatḥa*. In some sources it is written with *kasra*.

Word-inital vowels

In the *Kitāb al-Ansāb* and in the memoirs of al-Baidhaq, initial *i-* and *u-* are regularly written with *alif-madda* followed by *yā'* and *wāw*. Initial *a-* is written with *alif-madda* preceded by a high 'chairless' *hamza*:[6]

ءآيت ورسانن	*Ayet Wersanen*
آيفشتالن	*Ifeštalen*
آوغزافن	*Uγzafen*

The other sources contain only one example of an initial vowel other than *a-* written with *alif-madda* (Tuḥfa no 17):

آوداد	*udad*	'Barbary sheep'

This use of *madda* to indicate the presence of a word-initial vowel, *a-* as well as *i-* and *u-*, is typical of medieval Berber orthography. It is clearly a divergence from contemporary Arabic usage.[7]

In fully or partially vocalized forms in Ibn Tunart's *Kitāb al-Asmā'*, initial *a-* is written either with *alif-madda*, or with *alif-madda* with preceding low chair-less *hamza*, or with *alif* with preceding *hamza*:

آمكراز	*amekraz*	'plowman'
ءآدرار	*adrar*	'Chinese lantern'
ءاغاز	*aγaz*	'fruit of the fan palm'

These spellings of initial *a-* are also occasionally found in the other sources, especially *alif-madda*.

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6. Lévi-Provençal has made several changes in the spelling of the Berber materials in the printed edition. The following exposé is based on an examination of the photographic plates added to the edition (esp. plate III).
7. On the use of *madda* in Maghribi-Arabic spelling see van den Boogert, 1989, p. 33.

{p. 361} In vocalized forms, Ibn Tunart writes initial *i-* with *alif* with subscript *hamza*, followed by *yā'*:

إيردن	*irden*	'wheat'

Initial *u-* is written with *alif* with hamza written through its middle (reproduced here with superscript *hamza* for typographical reasons), followed by *wāw*:

أوماد	*ummad*	'diss grass'

Word-initial *schwa* is represented by *alif* (with superscript *fatḥa* in vocalized text):

افسوا	*efsu*	'card (wool)!'
انس	*ennes*	'of him'
وار الاغ	*war ellaγ*	'dodder' [8]

In the other sources, Berber words are usually left unvocalized. When a word is written without vocalization, word-initial *a-* is written with *alif* and word-initial *i-* and *u-* are written with *alif* followed by the appropriate *ḥarf al-madd*:

ادمام	*admam*	'medlar'
ايغرى	*iγrey*	'asphodel'
اوكان	*ukkan*	'Caralluma europea'

Note that in the absence of vocalization, word-initial *alif-wāw* may represent either *u-* or *aw-* and *alif-yā'* may represent either *i-* or *ay-*:

اوماد	*ummad*	'diss grass'
اوسرغينت	*awserγint*	'Corrigiola telephiifolia'
ايزرى	*izrey*	'wormwood'

8. Also written as one word وارلاغ *warellaγ*. Etymologically *war* 'he who has not' and **allaγ* 'stalk, stem' (cf. Touareg *allaγ* 'javelin', *tallaq* 'wooden shaft of a lance'?). The epiphytic dodder (Cuscuta epithymum) indeed has no rooted stem, cf. also its name in Tashelhit, *azzar n tmγarin* 'women's hair'.

ایرنی	*ayerni*	'friar's cowl'

On some examples in the work of Ibn al-Baiṭār of a divergent way of spelling word-initial vowels see below.

In order to present as clear a picture as possible, in the examples quoted below word-initial vowels will be written with simple *alif*, without *hamza* and/or *madda*, irrespective of the spelling found in the source.

Word-final vowels

Word-final *-a* is regularly written with *alif*. It is occasionally written with *alif maqṣūra* or with *hā'*:

{p. 362}	تايدا	*tayda*	'pine'
	تورزى	*turza*	'apple of Sodom'
	تاسليغوه	*tasliγwa*	'carob'

Word-final *-i* is written with *yā'*, usually without its diacritical dots:

اسليلى	*aslili*	'dill'
تيبى	*tibi*	'mallow'

Word-final *wāw*, representing either the vowel *-u* or the consonant *-w*, is often followed by an *alif*. This *alif* is a purely graphical device, and does not represent a vowel:

وايللوا	*waylellu*	'henbane'
خيزوا	*xizzu*	'carrots'
افرسيوا	*afersiw*	'fern'
تيلفاوا	*tilfaw*	'lupin'

In the modern standard orthography of Arabic this so-called *alif al-wiqāya* 'prophylactic *alif*' is written with plural verbal forms only. In the spelling of the Koran it is used more widely, e.g. II 269 اولوا الالباب *ūlū 'l-albābi*, XIII 39 الله يمحوا

yamḥū 'Llāhu.

The consonants

The representation of the following consonants poses no problems:

ب	*b*	ايباون	*ibawen*	'beans'
ت	*t*	تيبيتاست	*tibitast*	'beet'
خ	*x*	تيزخت	*tizext*	'willow'
د	*d*	امراد	*amrad*	'acacia'
ر	*r*	ارماس	*armas*	'orache'
ز	*z*	ازنزوا	*azenzu*	'clematis'
س	*s*	اساسنوا	*asasnu*	'strawberry tree'
ش	*š*	تاشنتيت	*tašentit*	'rye'
غ	*γ*	تاغيغيت	*taγeyγeyt*	'soapwort'
ف	*f*	تيفاف	*tifaf*	'chicory'
ك	*k*	ايكيكر	*ikiker*	'chick peas'
ل	*l*	اليلى	*alili*	'oleander'
م	*m*	ادمام	*admam*	'medlar'
ن	*n*	انلى	*anli*	'sorghum'
ه	*h*	ترهلا	*terrehla*	'agrimony'
و	*w*	وامسا	*wamsa*	'fennel'
ى	*y*	تاريال	*taryal*	'mandrake'

{p. 363} The spelling of the consonants *ḍ*, *ẓ*, *g* and *ž* is more complicated. Before looking at how these consonants are written, it is useful to take a brief look at the way in which a borrowed script is adjusted to represent consonants that are not present in the language for which the script was originally designed. An almost universally applied method of adaptation is to write a consonant for which the borrowed script has no separate letter with the letter that represents its nearest equivalent in the perception of the native speaker. This is usually its voiced or voiceless counterpart. For example, in early Persian orthography, the consonant *g* was written with the letter *kāf*, which also represented Persian *k*. In the same manner, the Persian consonant *č* was written with the letter *ǧīm*, which also repres-

ented Persian *ǧ*.[9] This method was also applied in the representation of Berber consonants for which the Arabic script has no separate letter.

Thus, the consonant *ḍ* is written with *ṭā'* (voiceless counterpart):

انلكوط	*anelkuḍ*	'borage'
تيكيطا	*tikiḍa*	'carobs'

Note that at the time when the Berber orthography was devised, the letter ض, which in modern transcription systems is usually transcribed as *ḍ*, probably did not represent a dental stop *ḍ* but rather an interdental or lateral fricative. In any case, Arabic *ṭ* was apparently perceived as the nearest equivalent to Berber *ḍ* and hence the letter *ṭā'* was chosen to represent *ḍ*. Note also that Arabic *ṭ* is replaced with *ḍ* in loanwords, e.g. Arabic *ṭabīb* 'doctor' becomes *aḍbib* in Berber. It is also possible, though not probable, that medieval Berber had *ṭ* instead of *ḍ* (voiceless *ṭ* is still found in some dialects, e.g. in Jabal Nafūsa and the Middle Atlas).

The letter *ṭā'* also represents *ṭṭ* (tense counterpart of *ḍ*):

اكطوم	*ageṭṭum*	'twig'

The consonant *ẓ* is written either with *zāy* (non-pharyngealized counterpart) or with *ṣād* (voiceless counterpart):

تافرزيزت	*taferẓiẓt*	'colocynth'
اصوكا	*aẓuka*	'thuya'

The sources contain an explicit statement that the letter *ṣād* represents *ẓ*: Ibn al-Ḥasshā' mentions the name الصاص *aleẓẓaẓ* 'Daphne gnidium' and indicates its pronunciation by adding the phrase *bayn aṣ-ṣād wa-z-zāy*, 'between *ṣ* and *z*', i.e. a consonant which is pharyngealized like *ṣ* and voiced like *z*.[10]

9. At a later stage, the two values of each letter were differentiated by forming the separate letters *čīm* and *gāf* by means of the addition of three diacritical points to *ǧīm* and *kāf*.

10. Ibn al-Ḥasshā', ed. Colin & Renaud, 1941, no 600.

Ibn Tunart consistently uses *ṣād* to write *ẓ*. In the other sources there seems to be free variation between *zāy* and *ṣād*.

In a few rare cases, the letter *ṣād* represents *ṣ*:

تيبينصرت	*tibinṣert*	'marsh mallow'
اصغر	*aṣγer*	'wood, bush'

In the case of the well-attested plant name *tibinṣert*, the *ṣ* can be explained etymologically, as this name appears to be a contraction of تيبي ان مصر *tibi en Meṣer* 'mallow of Egypt' (original form mentioned by Ibn Tunart). In the case of *aṣγer*, the spelling represents the form [aṣγeṛ] (the emphatic *ṛ* is never distinguished from *r* in the spelling) which is a variant of اسغر *asγer* (also attested).

The consonant *g* is written either with *ǧīm*, *kāf* or *qāf*:

ايدجل	*idgel*	'cedar'
انكارف	*angaref*	'chaste tree'
امزقور	*amezgur*	'sorghum'

One plant name is found in the sources with all three spellings:

ارجان	*argan*	'argan'
اركان	id.	'id.'
ارقان	id.	'id.'

Note that the name *argan* denotes a tree (Argania spinosa) which does not grow in berberophone areas where original *g* can become *ž*.[11] It is therefore certain that *ǧīm* represents *g*, as the form ˣ*aržan* does not exist.

That *ǧīm* represented *g* can also be deduced from the spelling of some Arabic nisbas. For instance, members of the Tashelhit-speaking High Atlas tribe whose modern name is *Igdmiwn* use the nisba الجدميوي *al-Jadmīwī*,[12] which is derived

11. On *g* > *ž* see Kossmann, 1995.
12. The alternative spelling الكدميوي *al-Kadmīwī* is also found.

from the medieval Berber spelling ايجدميون *Igedmiwen*.

The letter *qāf* also represents *qq* (tense counterpart of γ):

ازقور	*azeqqur*	'tree-trunk'
تيقى	*tiqqi*	'juniper'

In most sources the choice between *ǧīm* or *kāf* for *g* appears to be free. *Qāf* is consistently used by Ibn 'Abdūn, but it is rare in the other sources. It is probable that the variation between *ǧīm* and *kāf* is the result of historical developments (see below).

The consonant *ž* is written with *ǧīm* or *šīn*:

اناشل	*anažel*	'bramble'
تونجيفين	*tunžifin*	'pearl barley'

{p. 265} Ibn 'Abdūn of Seville, who mentions the name ايش *ižž* 'terebinth' (a Zenatic form), precisely indicates the pronunciation of *šīn* by adding the phrase *bayn aš-šīn wa-z-zāy*, 'between *š* and *z*', i.e. a consonant which is palatal like *š* and voiced like *z* (ed. al-Khaṭṭābī, 1996, no 1584).

Note that *ǧǧ* is always written with *ǧīm*:

ازجيج	*azeǧǧig*	'flower'
تازجاشت	*tazeǧǧašt*	'convalescence'

The variation found in the representation of *g* and *ž* is probably the result of phonological changes that took place in the spoken Arabic of the Maghrib. It is possible to distinguish two basic stages in the development of the Berber orthography, as set out in the table below.

	Stage 1		*Stage 2*	
letter	Arabic	Berber	Arabic	Berber
ج	*g* or *ǵ*	*g*	*ǧ* or *ž*	*ž*
ش	*š*	*š* + *ž*	*š*	*š*
ك	*k*	*k*	*k*	*k* + *g*

At stage 1, the letter *ǧīm* was chosen to represent Berber *g*. At this time, *ǧīm* must have represented Arabic *g*, or perhaps *ǵ*. We have no knowledge of any variety of Arabic spoken in the Maghrib that has or had *g* or *ǵ* corresponding to *ǧīm*. An indication that such a dialect may once have existed is perhaps found in the Berber loanword *timezgida* 'mosque', which corresponds to an Arabic form **mesgida* or **mesǵida* rather than the attested *mesžid* or *mesǧid* (standard *masǧid*).[13] In addition, Ibn Tunart mentions a form ايتكارن *iteggaren* 'traders', cf. Arabic *tažer* (standard *tāǧir*) 'trader'.

At stage 1, the letter *ǧīm* could not be used for Berber *ž*, so that *šīn* (voiceless counterpart) was chosen instead.

At stage 2, Arabic *g* had changed to *ǧ* or to *ž*, so that *ǧīm* became available to write Berber *ž*. Berber *g* was then written with *kāf* (voiceless counterpart).

The Leiden fragment is the only source which consistently uses *kāf* for *g*, and which can thus be taken as representing stage 2. No source is available at present which represents stage 1. All other sources seem to represent an intermediate, transitional stage in the development of Berber orthography:

{p. 366} *Intermediate stage*

letter	Arabic	Berber
ج	*ǧ* or *ž*	*ž* + *g*
ش	*š*	*š* + *ž*
ك	*k*	*k* + *g*

13. Cf. also Spanish *mezquita*.

The most illuminating example of this intermediate stage is provided by the *Kitāb al-Ansāb*, in which *g* is written with *ǧīm* or *kāf* and in a few cases with *ǧīm* with a small superscript *kāf*. In the printed edition, Lévi-Provençal has more or less systematically substituted *kāf* with three superscript dots (a post-medieval innovation) for *ǧīm* or *kāf* representing *g*. The original spelling with *ǧīm* + superscript *kāf* can be seen in the facsimiles, cf. plate II, line 1, ابو وزرج *Abū Wezreg* and plate IV, line 13, جزولة *Guzūla*.[14]

The retention of *ǧīm* to write *g*, and of *šīn* to write *ž*, long after Arabic *g/ǵ* had changed to *ǧ/ž*, is the result of the inertia that is characteristic of an established orthography.

Labialization

The labialization of velar consonants is indicated in vocalized script with the vowel sign *ḍamma*, which may be written either on the letter representing the velar itself or on the preceding letter:

تالقيت	[tāluqqīt]	*talegg^wit*	'white broom'
اكثار	[ākuṯār]	*ak^wṯar*	'yarrow' [15]
تاغندست	[tāγundast]	*taγ^wendest*	'pellitory'
يدختن	[yadduxtan]	*yeddex^wten*	'mistletoe' [16]

Ibn al-Baiṭār's spelling of vowels

A divergent system to represent word-initial *a-* in Berber plant names is encountered in the initial entries in Ibn al-Baiṭār's *Jāmi'*. This system is also found in other sources, but only for initial *ā-* in the Arabic transcription of Greek plant names.

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14. Berber اوكوزولن *Uguzulen*, modern Tashelhit *Ig^wzuln*: name of a tribal federation of the Anti-Atlas, 'Gzoula' in the French orthography.

15. The noun *ak^wṯar*, mentioned by al-Kutāmī and Ibn al-Baiṭār, contains what is perhaps the earliest attested example of spirantization. Ibn al-Baiṭār quotes Abū al-'Abbās an-Nabātī saying that this plant is 'well-known in the eastern part of the 'Udwa' (*ma'rūf bi-šarq bilād al-'udwa*).

16. Etymologically *yeddeγ^w* 'he sticks (to)' (3sgm) + *ten* 'them' (3plm): the sticky seeds of mistletoe cling to the branches of trees where they germinate.

Ibn al-Baiṭār's entries nos 2-6 are all Berber plant names. The initial vowel *a-* is written with *alif-madda*, followed by a second *alif*:

آاطريلال	*aḍereylal*	'false bishop's weed'
آاكثار	*ak*ʷ*ṯar*	'yarrow'
آارغيس	*arγis*	'barberry'
آامليلس	*ameliles*	'buckthorn'
آاقشروا	*agešru*	(unidentified)

{p. 367} The same spelling is used in entry no 1, which is a Greek name:[17]

آالسن	*ālusan*	'alyssum', Gr. αλυσσον

The logic behind this convention is that in this way all initial vowels are written with *alif* followed by the appropriate *ḥarf al-madd*, i.e. *alif-wāw* for *u-*, *alif-yā'* for *i-* and *alif-alif* for *a-*.

Beginning with entry no 7 (Arabic *abhal* 'savin'), Ibn al-Baiṭār has abandoned this cumbersome spelling of initial *a-*. In the remaining part of his work, initial *a-* is written with single *alif* in Berber as well as in Arabic and Greek names. The other Berber names with initial *a-* presented as main entries in the *bāb al-alif* are:

اداد	*addad*	'atractylis'
ادرييس	*aderyis*	'thapsia'
ارجان	*argan*	'argan'
ازرود	*azrud*	'melilot'

Another practice which Ibn al-Baiṭār quickly abandoned is the explicit description of the vocalization of a name. This is found in his first five entries, and sporadically in the rest of the book. From these explicit vocalizations it appears that Ibn al-Baiṭār used *kasra* instead of *fatḥa* to represent *schwa* (explicit vocalization between square brackets):

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17. Fifteen examples of initial double *alif* representing *a-* in Greek names are found in Dietrich's *Dioscurides triumphans* (see index to the Arabic text).

آاطريلال	[āṭiriylāl]	*aḍereylal*
آاكثار	[ākuṭār]	*akʷṭar*
آارغيس	[ārγiys]	*arγis*
آامليلس	[āmiliylis]	*ameliles*

In the older spelling of Arabic, the *ḥurūf al-madd* representing the long vowels *ī* and *ū* could be written with or without *sukūn*.[18] Thus, in the spelling of Berber *arγis*, the vowel *i* is explicitly written with *γayn maksūra* and *yā' sākina*, i.e. *γayn* with *kasra* and *yā'* with *sukūn*.[19] However, since Ibn al-Baiṭār uses *kasra* to represent *schwa*, this spelling may also represent Berber *-ey-*, as in *aḍereylal*, explicitly written with *rā' maksūra* and *yā' sākina*.

Arabic loans

Arabic loanwords in medieval Berber largely retain their original spelling. They are borrowed with the Arabic definite article, which is semantically 'neutralized'. *Tā' marbūṭa* is usually replaced with *tā'*:

{p. 368}	الترنج	*etterenž*[20]	'citron', Ar. *at-turunǧ*
	الميمون	*elmeymun*	'bryony', Ar. *al-maymūn*
	الفصت	*elfeṣṣet*	'lucerne', Ar. *al-fiṣṣa(t)*

In some cases the spelling is changed to reflect Berber pronunciation:

الدونيت	*edduneyt*	'world', Ar. *ad-dunyā*
الشيشيت	*eššišeyt*	'bonnet', Ar. *aš-šāšiya(t)*

Notes on phonology and morphology

No full survey of Medieval Berber grammar will be attempted here; only some of

18. In modern standard orthography, the *ḥurūf al-madd* are always written without *sukūn*.
19. In the spelling of entry no 5, *ameliles*, Ibn al-Baiṭār does not indicate whether the *yā'* has *sukūn*. He simply states *al-mīm wa-l-lāmān minhu maksūra wa-s-sīn muhmala*, 'the *mīm* and the two *lāms* have *kasra*, the *sīn* is without diacritical points.'
20. Explicitly Berber, explicitly vocalized *bi-fatḥ at-tā' wa-r-rā'*.

the more salient features will be pointed out.

(1) The vowel *a* is sometimes (though not regularly) reduced to *e* before the consonant *r*, e.g.:[21]

	medieval	Tashelhit
تازرت	*tazert*	*taẓart* 'figs'
اسغر	*asɣer*	*asɣaṛ* 'wood, bush'
تامرت	*tamert*	*tamart* 'beard'

(2) Plurals with nominal prefixes *u-* and *tu-* occur frequently where corresponding forms in the modern Berber languages have *i-* and *ti-*:[22]

	medieval	Tashelhit
اوكرمودن	*ukermuden*	*ikrmudn* 'leguminous plants'
تورو فين	*turufin*	*tirufin* 'roasted barley'

Tashelhit is in fact the only Berber language for which comparable forms are attested, e.g. *tumẓin* 'barley', *tumɣarin* 'women' (*timẓin*, *timɣarin* in other languages).

(3) The forms of the *état d'annexion* of masculine nouns are as follows:

اجليد	*agellid*	'king'	*état libre*
وجليد	*wegellid*		*état d'annexion*
اصروا	*aẓru*	'stone'	*é.l.*
وصروا	*weẓru*		*é.a.*
امان	*aman*	'water'	*é.l.*

21. All three forms are attested in more than one source; it is unlikely that they are misspellings or corruptions.
22. Cf. also the ethnonyms *Uguzulen* and *Uɣzafen* mentioned above.

وامان	*waman*		*é.a.*
ايغف	*iγef*	'head'	*é.l.*
يغف	*yeγef*		*é.a.*
ايكران	*igran*	'fields'	*é.l.*
يكران	*yegran*		*é.a.*
ايلل	*ilel*	'sea'	*é.l.*
ييلل	*yilel*		*é.a.*
اوشن	*uššen*	'jackal'	*é.l.*
ووشن	*wuššen*		*é.a.*

The construct states with *we-* and *ye-* have consistently been transcribed incorrectly in the past, viz. with initial vowels *i-* or *u-* (e.g. ×*ugellid* instead of *wegellid*). The letters *yā'* and *wāw* in word-initial position always represent the consonants *y-* and *w-*. The vowels *i-* and *u-* in word-initial position can only be written with *alif* followed by *yā'* c.q. *wāw*.

(4) The *état d'annexion* is found, among others, in possessive constructions:

تونين ان وجليد	*tunin en wegellid*	'wells of the king'
تيسنت ان وصروا	*tisent en weẓru*	'salt of stone'
ايديد ان وامان	*ayeddid en waman*	'sack of water'
انكاص ان يغف	*angaẓ en yeγef*	'pain of the head'
تووطفا ان يكران	*tuwedfa en yegran*	'possession of fields'
اطوا ان ييلل	*aḍu en yilel*	'wind of the sea'
اطيل ان ووشن	*aḍil en wuššen*	'grape of the jackal'

Other examples include:

ايكر ان وسنان	*iger en wesennan*	'field of thorns'

ايمى ان تكمى	*imi en tegemmi*	'entrance of the house'
تابزوغت ان تيلى	*tabezzuɣt en tili*	'ear of the ewe'
تاغزوت ان والوط	*taɣzut en walud*	'valley of mud'
تامارت ان تاغاط	*tamart en taɣatt*	'beard of the goat'
تارقا ان وودى	*targa en wudi*	'canal of butter'
تيبى ان وامان	*tibi en waman*	'mallow of the water'
تيلت ان ينرفط	*tilett en yenerfed*	'herb of the spleen'

In many possessive constructions, the preposition *en* 'of' is omitted, while the possessor remains in the *état d'annexion*:

امان يسيدان	*aman yesidan*	'water of ostriches'
{p. 370} اسغر يغجد	*asɣer yeɣežd*	'shrub of the kid'
اصغر يفيغر	*aṣɣer yefiɣer*	'shrub of the serpent'
تافروت ووشن	*tafrut wuššen*	'knife of the jackal'
تامرت ومسون	*tamert Wemsun*	'beard of Amsoun' [23]
تيلت تفيغرا	*tilett tefiɣra*	'herb of the serpent'

The elimination of the nominal prefix leads one step further toward compound nouns:

اطار ايلال	*adar eylal*	'false bishop's weed' [24]

The same name is also attested as a full compound *adereylal* (Ibn al-Baiṭār, cf. above), with *a* reduced to *e* before *r*.

Some examples of compounds are:

اطومازير	*adumazir*	'figwort' [25]

23. Amsoun or Msoun is the name of a valley located north-west of Taza where the plant which bears this name (a variety of dodder) is said to grow.
24. Litt. 'bird's foot', *adar* 'foot' and *aylal* 'bird'.
25. Litt. 'smell-of-dung': *adu* 'odour' and *amazir* 'dung'.

اسغرسيف *asγersif* 'willow' [26]

(5) In personal names, Arabic *(a)bū* 'father of, he who has' and *ibn* 'son of' may be followed by a Berber noun in the *état d'annexion*:

بو وغيول	*Bū Weγyul*	'he with the donkey'
ابو ينيكف	*Abū Yenikef*	'father of Hedgehog'
بن ولوون	*ibn Welwun*	'son of Ram' [27]
بن ومغار	*ibn Wemγar*	'son of the Chief'

Arabic *ibn* is also used in the sense 'native of':

بن وجادير	*ibn Wegadir*	'native of Agadir'
بن وندلوس	*ibn Wendelus*	'native of (al-)Andalus'

Concluding remarks

An important question which has not been addressed thus far is: Which variety of Berber is, or which varieties are recorded in the medieval sources? Some brief remarks may be made here.

The more substantial sources record a variety of Berber which is most closely related to modern Tashelhit, as appears from a comparison of lexicon and morphology.[28] These sources are: Ibn Tunart's *Kitāb al-Asmā'*, the Leiden Fragment, the *Kitāb al-Ansāb* and the memoirs of al-Baidhaq. These sources also share some special features (e.g. reduction of *a* to *e* before *r*, *schwa* in open syllables, plurals with prefixes *u-*, *tu-*) which show that they all record the same variety of Berber. 'Old Tashelhit' may be an appropriate name for this language.

The most striking fact concerning the pharmacological manuals is that the **{p. 371}** majority of them were written in al-Andalus (az-Zahrāwī, Ibn Beklāresh, Ibn 'Abdūn), or by writers of Andalusian birth working in the Middle East (Maimo-

26. Litt. 'river tree': *asγer* 'bush, tree' and *asif* 'river'.
27. Cf. Ibn Tunart الوون *alwun* 'ram' (Arabic *kabš*).
28. This point is elaborated in van den Boogert, 1998, p. 12.

nides, Ibn al-Baiṭār). It is likely that a substantial body of speakers of a variety of Berber akin to Tashelhit lived in al-Andalus, and that al-Andalus is the place where this language was first committed to writing.[29] That there were indeed Berbers in Spain who spoke a Tashelhit-like language is shown by the fact that at the end of the 15th century, as a consequence of the *reconquista*, a group or groups of berberophones are known to have migrated from Spain to the Sous in southern Morocco, where they became known as the 'people of the ship' (*ayt uγrrabu*). One of them is Sa'īd al-Kurrāmī (Sεid Akʷrramu, d. 882/1477-8), who is reputed to be the last surviving Berber scholar who had received his schooling in Granada.[30] The Andalusian Arabic loanwords which are still found in Tashelhit, such as *lmri* 'mirror', *lkiγd* 'paper', *lixrt* 'hereafter', *ššišit* 'bonnet', etc., also point to a connection between Tashelhit and al-Andalus.[31]

It is noteworthy that in the *Kitāb al-Ansāb* and the memoirs of al-Baidhaq, who was certainly born in the South of Morocco, the Berber phrases are repeatedly said to be 'in the language of the Gharb' (*lisān al-γarb*). The coastal area in Morocco which is known as 'the West' (*al-γarb*) is now inhabited by arabophones. The berberophone Ghomara, in northern Morocco, may be an isolated remnant of the original Berber language spoken in this area.[32]

The botanist 'Abdallāh ibn Ṣāliḥ al-Kutāmī belonged to the Kutāma or Ikʷtamen tribe. Members of this tribe had settled in various parts of North-Africa and al-Andalus.[33] Al-Kutāmī had a druggist's shop in Marrakech. He was one of the teachers of Ibn al-Baiṭār (cf. Ullmann, 1970, p. 279).

Ibn al-Ḥasshā' may have spoken a Tashelhit-like Berber language, as he worked in the service of the first sultan of the Ḥafṣid dynasty of Tunisia (cf. Ullmann, 1970, p. 236). The Ḥafṣids were the descendants of Abū Ḥafṣ 'Umar (a.k.a. 'Umar Inti, d. 571/1176), a Berber of the South Moroccan Hantāta tribe and one of the close companions of Ibn Tumert.

29. On Berbers in al-Andalus in general see de Felipe, 1993 and 1997.
30. Cf. Justinard, 1933, pp. 220-224.
31. Standard Arabic *ā* often changed to *ī* in Andalusian colloquial Arabic; compare the standard forms *al-mir'ā(t)*, *al-kāγiḏ*, *al-'āxira(t)*, *aš-šāšiya(t)*. Pedro de Alcalá actually mentions the forms *mirí* 'mirror' and *xixía* 'bonnet'. See also van den Boogert, 1998, p. 195.
32. The present-day Ghomara claim that they are related to the Chleuh, the speakers of Tashelhit (cf. Colin, 1929).
33. See *EI²*, 'Kutāma'.

The gradual expulsion of the Muslims from Spain in the course of the 15th century probably put an end to Old Tashelhit as a written language. A century or so later, (pre-)modern Tashelhit emerged as a literary language, in the garb of a different, newly devised orthography.[34]

There are also medieval sources which record a variety of Berber which is clearly not closely related to Tashelhit. In fact, the oldest examples of Berber in Arabic script known to the present author are the plant names which are found in the *Kitāb al-I'timād*, a pharmacological manual compiled in the second half of the 10th c. A.D. by Ibn al-Jazzār (d. 369/980 or 395/1004). The names are:

	تيكيروتان	*tigirutan*	'dittany'
{p. 372}	التشتيوان	*(at-) teštiwan*	'polypody'
	التاكندست	*(at-) tag^{w}endest*	'pellitory'
	التاكوت	*(at-) takkewt*	'Euphorbia resinifera'
	التانغوت	*(at-) taneγut*	'Euphorbia pithyusa'
	التانغيت	*(at-) taneγit*	'id.'
	التافروت	*(at-) tafrut*	'iris'

All of these names except one are written with the Arabic definite article. Note the plural ending *-an* with feminine nouns, which is only attested in the language of the Ghomara.[35] Ibn al-Jazzār lived and worked in Kairouan in Tunisia; of his ethnic background nothing is known.

The use at this early date of the letter *kāf* to represent the Berber consonant *g* in *tigirutan* may be an indication that stage 1 in the development of the Berber orthography is to be dated to even earlier time, possibly in the 9th or even 8th century A.D.

Among the sources that were not examined for this article there are some in which eastern varieties of Berber are recorded. These include the Berber passages in

34. The oldest preserved text in the 'new' orthography is the *'Aqā'id ad-Dīn* by Ibrāhīm ibn 'Abdallāh aṣ-Ṣanhājī (a.k.a. Brahim Aẓnag, d. 1005/1597). See van den Boogert, 1997, chapter 5.
35. Cf. also the name of Tétouan, litt. 'the wells' (*Tiṭṭawin* تيطاوين in the memoirs of al-Baidhaq).

Ibadite scriptures (cf. Lewicki, 1934 and Ould-Braham, 1988), the 'manuscript of Zuwāra' (cf. Motylinski, 1907) and the abundant onomastic materials in the works of Ibn Khaldūn. These eastern materials are written in an orthography which is clearly based on the same principles as the orthography of the far West. Further study of the available materials will be necessary before we can determine where and when the medieval Berber orthography originated.

Alphabetical list of quoted medieval Berber forms {p. 372-4}

Only the reference to the source from which a particular form is quoted in this list. Many of the plant names are found in more than one source. The letter γ is placed after *g* in the alphabetical order.

Abdun	Ibn 'Abdūn, *'Umdat aṭ-Ṭabīb*, ed. al-Khaṭṭābī, 1996 (Beirut)
Ansab	Anon., *Kitāb al-Ansāb*, ed. Lévi-Provençal, 1928
Bakri	al-Bakrī, *Kitāb al-Mamālik wa-l-Masālik*, ed. de Slane, 1857
Baidhaq	al-Baidhaq, memoirs, ed. Lévi-Provençal, 1928
Baitar	Ibn al-Baiṭār, *al-Jāmi'*, tr. Leclerc, 1877-1883
Hassha	Ibn al-Ḥasshā', *Mufīd al-'Ulūm*, ed. Colin & Renaud, 1941
Jazzar	Ibn al-Jazzār, *Kitāb al-I'timād*, facsimile, 1985
Kutami	al-Kutāmī, commentary on Dioscurides, ed. Dietrich, 1988
Maimonides	Maimonides, *Sharḥ Asmā' al-'Uqqār*, ed. Meyerhof, 1940
Tadili	at-Tādilī, *at-Tashawwuf*, ed. Faure, 1958
Tuhfa	Anon., *Tuḥfat al-Aḥbāb*, ed. Renaud & Colin, 1934
Tunart	Ibn Tunart, *Kitāb al-Asmā'*, Leiden ms. Or. 23.333 (Lq) and Or. 23.348 (La)

Abu Wezreg, Ansab p. 29
Abū Yenikef, Tadili p. 218
addad, Baitar no 27
aderyis, Tunart Lq 23v°
admam, Kutami I 62
adrar, Tunart 23r°
aḍar eylal, Tunart La 14v°
aḍereylal, Baitar no 2
aḍil en wuššen, Tunart La 14v°
aḍu en yilel, Tunart La 15v°
aḍumazir, Kutami IV 83
afersiw, Tuhfa no 366
agešru, Baitar no 6
ageṭṭum, Tunart La 13v°
aγaz, Tunart Lq 23r°
akʷṭar, Baitar no 3 (double initial *alif*)
akʷṭar, Kutami IV 91 (single initial *alif*)
alezẓaẓ, Hassha no 600
alili, Kutami IV 72
alwun, Tunart La 10r°
aman yesidan, Bakri p. 156
amekraz, Tunart Lq 20v°
ameliles, Baitar no 5
amezgur, Abdun no 872
amrad, Tuhfa no 204
anažel, Tunart La 13r°
angaẓ en yeγef, Tunart Lq 14r°
anelkuḍ, Tunart La 14v°
angaref, Tunart La 13r°
anli, Abdun no 219
armas, Abdun no 1802
argan, Baitar no 56 (with *ǧīm*)
argan, Baitar no 1145 (with *qāf*)
argan, Tunart La 13r° (with *kāf*)
arγis, Baitar no 4

asasnu, Kutami I 98
asγer yeγežd, Kutami III 91
asγersif, Kutami I 73
aṣγer yefiγer, Baitar no 1604
aslili, Kutami III 56
awserγint, Kutami IV 7
ayeddid en waman, Tunart Lq 16v°
ayerni, Kutami II 149
Ayet Wersanen, Ansab p. 44
azeǧǧig, Tunart Lq 24v°
azenzu, Tuhfa no 206
azeqqur, Tunart La 13v°
azrud, Baitar no 61
aẓuka, Tunart Lq 23r°
Bū Weγyul, Baidhaq p. 124
edduneyt, Ansab p. 40
efsu, Tunart La 11r°
elfesṣet, Tunart Lq 24v°
elmeymun, Baitar no 1655
ennes, Tunart passim
eššišeyt, Tunart La 12v°
etterenž, Abdun no 22
Guzūla, Ansab p. 43
ibawen, Abdun no 1982
ibn Wegadir, Tadili p. 460
ibn Welwun, Tadili p. 164
ibn Wemγar, Ansab p. 29
ibn Wendelus, Tadili p.348
idgel, Tunart Lq 23r°
Ifeštalen, Ansab p. 45
iger en wesennan, Baidhaq p. 78
iγrey, Tunart Lq 23v°
ikiker, Tunart La 14r°
imi en tegemmi, Baidhaq p. 120
irden, Tunart La 6v°
isidan, Tunart Lq 11r°
izrey, Kutami III 24
ižž, Abdun no 1584
tabeẓẓuγt en tili, Kutami II 108
taferẓiẓt, Kutami IV 167
tafrut, Jazzar p. 55
tafrut wuššen, Kutami IV 20
tag^{w}endest, Jazzar p. 147
taγ^{w}endest, Abdun no 1599
taγeyγeyt, Maimonides no 24
taγzut en walud, Baidhaq p. 93
takkewt, Jazzar p. 149
talegg^{w}it, Abdun no 939
tamart en taγaṭṭ, Kutami IV 134
tamemmašt, Kutami I 58
tamert Wemsun, Baitar no 2015
taneγit, Jazzar p. 167
taneγut, Jazzar p. 167
targa en wudi, Bakri p. 59
taryal, Abdun no 2673
tasaft, Kutami I 75
tasliγwa, Maimonides no 392
tasselt, Kutami I 45
tašentit, Tunart La f.6v°
tayda, Kutami I 33
tazeǧǧašt, Tunart La 6r°
tazert, Abdun no 327
terrehla, Baitar no 413
teštiwan, Jazzar p. 97
tibi, Tunart Lq 24v°
tibi en waman, Abdun no 685
tibi en Meṣer, Tunart Lq 24v°
tibinṣert, Tuhfa no 413
tibitast, Tunart La 15r°
tifaf, Kutami II 113
tigirutan, Jazzar p. 142
tikiḍa, Tunart La 13r°
tilett en yenerfeḍ, Abdun no 658
tilett tefiγra, Abdun no 635
tilfaw, Tunart Lq 25r°
tiqqi, Tunart La 13r°

tisent en weẓru, Tunart La 7r°
Tiṭṭawin, Baidhaq p. 93
tiẓext, Tunart Lq 23r°
tiznirt, Tunart Lq 23r°
tululit, Kutami II 156
tunin en wegellid, Bakri p. 156
tunžifin, Tunart La 6v°
turufin, Tunart La 15r°
turza, Bakri p. 179
tuweḍfa en yegran, Tunart La 25r°
udad, Tuhfa no 17
Uguzulen, Ansab p. 43
Uγzafen, Ansab p. 46
ukermuden, Tunart Lq 25r°
ukkan, Tunart La 14r°
ummad, Tunart Lq 23r°
wamsa, Tunart La 14r°
war ellaγ, Kutami IV 168
warellaγ, Tunart La 14v°
waylellu, Tunart La 14r°
xizzu, Tuhfa no 93
yeddex^{w}*ten*, Kutami IV 168
yeludi, Tunart La 14r°

References

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DE ALCALÁ see CORRIENTE.

AL-BAKRĪ, Abū 'Ubaid. 1857. *Description de l'Afrique septentrionale par Abou-Obeid-el-Bekri*. Ed. de Slane. Paris: Challamel. (Arabic text.)

AL-BAIDHAQ see LÉVI-PROVENÇAL.

BASSET, René. 1899. 'Les noms berbères des plantes dans le traité des simples d'Ibn el Beïtar.' *Giornale della Società asiatica italiana* 12, pp. 53-66.

BELLAKHDAR, Jamal. 1997. *La pharmacopée marocaine traditionnelle. Médecine arabe ancienne et savoirs populaires*. Paris: Ibis Press.

VAN DEN BOOGERT, Nico. 1989. 'Some Notes on Maghribi Script.' *Manuscripts of the Middle East* 4, pp. 30-43.

———. 1995. *Catalogue des manuscrits arabes et berbères du Fonds Roux (Aix-en-Provence)*. Travaux et documents de l'Irémam 18. Aix-en-Provence.

———. 1997. *The Berber Literary Tradition of the Sous*. Publication of the De Goeje Fund XXVII. Leiden: Nederlands Instituut voor het Nabije Oosten.

———. 1998. *«La Révélation de énigmes». Lexiques arabo-berbères des XVII^e et XVIII^e siècles*. Travaux et documents de l'Irémam 19. Aix-en-Provence.

———. (In preparation). *Medieval Written Berber*.

———. (In preparation). *Le «Livre des noms» d'Ibn Tunart. Un dictionnaire arabo-berbère de l'âge almohade*.

CHAKER, Salem. 1981. 'Données sur la langue berbère à travers les textes anciens: La *Description de l'Afrique septentrionale* d'Abou Obeïd el-Bekri.' *Revue de l'occident musulman et de la Méditerranée* 31, pp. 31-46.

COLIN, G.S. 1929. 'Le parler berbère des Ġmāra.' *Hespéris* IX, pp. 43-58.

CORRIENTE, Frederico. 1988. *El léxico árabe andalusí según Pedro de Alcalá*. Madrid: Universidad de Madrid.

DIETRICH, Albert. 1988. *Dioscurides Triumphans*. Abhandlungen der Akademie der

Wissenschaften in Göttingen, Phil.-Hist. Klasse III, 172-73. 2 vols. Göttingen: Vandenhoeck und Ruprecht. (Contains the ed. and tr. of al-Kutāmī's commentary on Dioscurides.)

DE FELIPE, Helena. 1993. 'Berbers in the Maghreb and al-Andalus: Settlements and Toponomy.' *The Maghreb Review* XVIII, pp. 57-62.

———. 1997. *Identidad y onomástica de los beréberes de al-Andalus*. Madrid: Consejo superior de investigaciones científicas.

AL-GHASSĀNĪ, Abū'l-Qāsim ibn Muḥammad ibn Ibrāhīm. 1985. *Ḥadīqat al-Azhār fī Māhiyyat al-'Ushb wa-l-'Aqqār*. Ed. M.A. al-Khaṭṭābī. Beirut: Dār al-Gharb al-Islāmī.

IBN 'ABDŪN (Abū'l-Khair al-Ishbīlī). 1990. *'Umdat aṭ-Ṭabīb fī Ma'rifat an-Nabāt*. Ed. M.A. al-Khaṭṭābī. 2 vols. Rabat: Akādīmiyyat al-Mamlaka al-Maghribiyya.

———. 1996. (Same). 2 vols. Beirut: Dār al-Gharb al-Islāmī. (Second edition of the same text, with a different numeration of the entries.)

IBN AL-BAIṬĀR. 1291/1874-5. *al-Jāmi' li-Mufradāt al-Adwiya wa-l-Aghdhiya*. 4 vols. Boulaq.

———. 1877-1883. *Traité des simples par Ibn el-Beïthar*. Tr. J. Leclerc. Notices et extraits des manuscrits de la Bibliothèque Nationale 23.1, 25.1, 26.1. Paris. (Berber plant names quoted in Arabic script.)

IBN AL-ḤASSHĀ'. 1941. *Kitāb Mufīd al-'Ulūm wa-Mubīd al-Humūm. Glossaire sur le Mans'uri de Razès (X^e Siècle)*. Ed. G.S. Colin and H.P.J. Renaud. Textes arabes publiés par l'Institut des hautes-études marocaines XI. Rabat: Imprimerie économique.

IBN AL-JAZZĀR. 1985. *Kitāb al-I'timād fī'l-Adwiya al-Mufrada (The Reliable Book on Simple Drugs)*. Publications of the Institute for the History of Arabic-Islamic Science, ed. by Fuat Sezgin, Series C, Facsimile Editions, Vol. 20. Frankfurt am Main. (Facsimile of Istanbul ms. Ayasofya 3564).

ISSA, Ahmed. 1930. *Dictionnaire des noms des plantes en latin, français, anglais et arabe*. Cairo. (Reprint 1981, Beirut: Dar al-Raed al-Arabi.)

AL-JAZĀ'IRĪ, 'Abdarrazzāq. 1874. *Kachef er-roumouz (Révélation des énigmes) d'Abd er-Rezzaq ed-Djezaïry ou Traité de matière médicale arabe d'Abd er-Rezzaq l'Algérien*. Tr. Lucien Leclerc. Paris: Baillière, Leroux. (Berber plant names quoted in Arabic script.)

———. 1996. *Kashf ar-Rumūz fī Sharḥ al-'Aqāqīr wa-l-A'shāb*. Beirut: Dār al-Kutub al-'Ilmiyya.

KITĀB AL-ANSĀB see LÉVI-PROVENÇAL.

KOSSMANN, Maarten. 1995. 'La spirantisation dans les parlers zénètes: aperçu historique.' In BOS, Petra (ed.), *Langues du Maroc. Aspects linguistiques dans un contexte minoritaine*. Tilburg: Tilburg University Press.

AL-KUTĀMĪ see DIETRICH.

LÉVI-PROVENÇAL, E. 1928. *Documents inédits d'histoire almohade. Fragments manuscrits du "Legajo" 1919 du fonds arabe de l'Escurial*. Textes arabes relatifs à l'histoire de l'Occident musulman I. Paris: Geuthner.

LEWICKI, Tadeusz. 1934. 'De quelques textes inédits en vieux berbère provenant d'une chronique ibāḍite anonyme.' *Revue des études islamiques* 1934, Cahier III, pp. 275-296. (with a *Note additionnelle* by André Basset, pp. 297-305.)

MAIMONIDES (Abū 'Imrān Mūsā ibn 'Ubaidallāh al-Isrā'īlī). 1940. *Sharḥ Asmā' al-'Uqqār (L'explication des noms de drogues). Un glossaire de matière médicale composé par Maïmonide*. Ed. and tr. Max Meyerhof. Mémoires présentés à l'Institut d'Egypte 41. Cairo: Imprimerie de l'Institut français d'archéologie orientale.

MARCY, G. 1932. Les phrases berbères des documents inédits d'histoire almohade. *Hespéris* XII, pp. 61-77.

MOTYLINSKI, A. de Calassanti. 1907. 'Le manuscrit arabo-berbère de Zouagha [*sic*] découvert par M. Rebillet: Notice sommaire et extraits.' *Actes du XIVe Congrès international des orientalistes (Alger 1905)*. Vol. 2, section IV, pp. 68-78. Paris.

OULD-BRAHAM, Ouahmi. 1988. 'Sur une chronique arabo-berbère des Ibāḍites médiévaux.' *Etudes et documents berbères* 4, pp. 5-28.

RENAUD, H.P.J. 1930. 'Trois études d'histoire de la médecine arabe en occident. I, Le *Must'īnī* d'Ibn Beklāreš.' *Hespéris* X, pp. 135-150.

AT-TĀDILĪ, Abū Ya'qūb Yūsuf ibn Yaḥyā. 1958. *at-Tašawwuf ilā rijāl at-taṣawwuf. Vies des saints du Sud marocain des* v^e*-*vi^e*-*vii^e *siècles de l'Hégire. Contribution à l'étude de l'histoire religieuse du Maroc.* Ed. Adolphe Faure. Collection de textes arabes publiée par l'Institut des hautes-études marocaines XII. Rabat.

TUḤFA. 1934. *Tuḥfat al-Aḥbāb fī Māhiyyat an-Nabāt wa-l-A'shāb. Glossaire de la matière médicale marocaine.* Ed. and tr. H.P.J. Renaud and G.S. Colin. Publications de l'Institut des hautes-études marocaines XXIV. Paris: Geuthner.

ULLMANN, Manfred. 1970. *Die Medizin im Islam.* Handbuch der Orientalistik, Erste Abteilung, Ergänzungband VI, Erster Abschnitt. Leiden: Brill.